ACTA PHYSIOLOGICA SCANDINAVICA

EDITORIAL BOARD

Chief Editor

B. Uvnäs *Stockholm*

National Editors

N. A. Thorn *København*

J. Leppäluoto *Oulu*

J. Jansen *Oslo*

D. Ottoson *Stockholm*

Volume 129

Pages 1–596

Published for the

SCANDINAVIAN

PHYSIOLOGICAL SOCIETY *by*

BLACKWELL SCIENTIFIC PUBLICATIONS

1987

Published for the
Scandinavian Physiological Society by
Blackwell Scientific Publications
Osney Mead, Oxford OX2 0EL
8 John Street, London WC1N 2ES
23 Ainslie Place, Edinburgh EH3 6AJ
52 Beacon Street, Boston, Massachusetts 02108, USA
667 Lytton Avenue, Palo Alto, California 94301, USA
107 Barry Street, Carlton, Victoria 3053, Australia

Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by the Scandinavian Physiological Society for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of $02.00 per copy is paid directly to CCC, 27 Congress Street, Salem, MA 01970, USA. Special requests should be addressed to the Editor. 0001–6772/87 $02.00.

© 1987 Scandinavian Physiological Society

Printed in Great Britain
by the University Press, Cambridge

Contents

VOLUME 129, NUMBER 1, JANUARY 1987

SAHLIN, K., EDSTRÖM, L. & SJÖHOLM, H. Force, relaxation and energy metabolism of rat soleus muscle during anaerobic contraction 1

JENNISCHE, E., SKOTTNER, A. & HANSSON, H.-A. Satellite cells express the trophic factor IGF-I in regenerating skeletal muscle 9

NILSSON, S. F. E. & MÄEPEA, O. Comparison of the vasodilatory effects of vasoactive intestinal polypeptide (VIP) and peptide-HI (PHI) in the rabbit and the cat 17

SKARPHEDINSSON, J. O. & THORÉN, P. The effects of naloxone on behavioural depression due to hypotensive haemorrhage in unanaesthetized spontaneously hypertensive rats 27

ØSTENSEN, J., LANGBERG, H. & KIIL, F. How bicarbonate loading inhibits tubular reabsorption of NaCl in dog kidneys 35

CELSING, F., SVEDENHAG, J., PIHLSTEDT, P. & EKBLOM, B. Effects of anaemia and stepwise-induced polycythaemia on maximal aerobic power in individuals with high and low haemoglobin concentrations 47

WIESENFELD-HALLIN, Z. & DURANTI, R. D-Arg[1], D-Trp[7,9], Leu[11]-substance P (spantide) does not antagonize substance P-induced hyperexcitability of the nociceptive flexion withdrawal reflex in the rat 55

LAGERBÄCK, P.-Å. & ULFHAKE, B. Ultrastructural observations on beaded α-motoneuron dendrites 61

GRADIN, K., HEDNER, J., HEDNER, T., TOWLE, A. C., PETTERSSON, A. & PERSSON, B. Effects of chronic salt loading on plasma atrial natriuretic peptide (ANP) in the spontaneously hypertensive rat 67

OLSSON, K., DAHLBORN, K. & KARLBERG, B. E. Blood pressure response to angiotensin II in pregnant and lactating goats maintained on high or low sodium intake 73

ELY, D. E., THORÉN, P., WIEGAND, J. & FOLKOW, B. Sodium appetite as well as 24-h variations of fluid balance, mean arterial pressure and heart rate in spontaneously hypertensive (SHR) and normotensive (WKY) rats, when on various sodium diets 81

ODDSSON, L. & THORSTENSSON, A. Fast voluntary trunk flexion movements in standing: motor patterns 93

NILSSON, J. & THORSTENSSON, A. Adaptability in frequency and amplitude of leg movements during human locomotion at different speeds 107

EKLUND, S., BRUNSSON, I., JODAL, M. & LUNDGREN, O. Changes in cyclic 3′5′-adenosine monophosphate tissue concentration and net fluid transport in the cat's small intestine elicited by cholera toxin, arachidonic acid, vasoactive intestinal polypeptide and 5-hydroxytryptamine 115

HARALDSSON, B. & RIPPE, B. Orosomucoid as one of the serum components contributing to normal capillary permselectivity in rat skeletal muscle 127

Rapid communication

CHERKSEY, B. D. & ZEUTHEN, T. A membrane protein with a K^+ and a Cl^- channel 137

INSTRUCTIONS TO AUTHORS 139

VOLUME 129, NUMBER 2, FEBRUARY 1987

ANDERSSON, B., AUGUSTINSSON, O., BADEMO, E., JUNKERGÅRD, J., KVART, C., NYMAN, G. & WIBERG, M. Systemic and centrally mediated angiotensin II effects in the horse 143
TIKKANEN, T., TIKKANEN, I. & FYHRQUIST, F. Plasma atrial natriuretic peptide in DOCA-NaCl-treated rats 151
ELLINGSEN, I., HAUGE, A., NICOLAYSEN, G., THORESEN, M. & WALLØE, L. Changes in human cerebral blood flow due to step changes in P_{AO_2} and P_{ACO_2} 157
HANSSON, H.-A., JENNISCHE, E. & SKOTTNER, A. IGF-I expression in blood vessels varies with vascular load 165
ERIKSSON, Ö. & WISTRAND, P. J. A search for a model tissue for studying effects of thiazide diuretics 171
OLESEN, S.-P. Free oxygen radicals decrease electrical resistance of microvascular endothelium in brain 181
SÖDERBÄCK, U., SOLLEVI, A. & FREDHOLM, B. B. The disappearance of adenosine from blood and platelet suspension in relation to the platelet cyclic AMP content 189
ELLINGSEN, I., SYDNES, G., HAUGE, A., ZWART, J.-A., LIESTØL, K. & NICOLAYSEN, G. CO_2 sensitivity in humans breathing 1 or 2% CO_2 in air 195
EKLUND, S., FAHRENKRUG, J., JODAL, M., LUNDGREN, O. & SJÖQVIST, A. Mechanisms of neurotensin-induced fluid secretion in the cat ileum *in vivo* 203
LÖVGREN, B. & HELLSTRAND, P. Functional role of aerobic glycolysis in rat portal vein 211
HANSELL, P., GÖRANSSON, A., LEPPÄLUOTO, J., ARJAMAA, O., VAKKURI, O. & ULFENDAHL, H. R. CNS-induced natriuresis is not mediated by the atrial natriuretic factor 221
FLADBY, T. Postnatal loss of synaptic terminals in the normal mouse soleus muscle 229
FLADBY, T. & JANSEN, J. K. S. Postnatal loss of synaptic terminals in the partially denervated mouse soleus muscle 239
KUNESCH, E., SCHMIDT, R., NORDIN, M., WALLIN, U. & HAGBARTH, K.-E. Peripheral neural correlates of cutaneous anaesthesia induced by skin cooling in man 247
OLIW, E. H. Prostaglandin E_2 20-hydroxylase in ampulla of vas deferens of sheep 259
EHINGER, B. & HALLENGREN, C. Histamine in the retina 263

Rapid communication
PETTERSSON, K. & TUTTLE, R. S. Immediate reduction of blood pressure and sympathetic nerve activity after β-blockade in anaesthetized cats with deafferentiated arterial baroreceptors 267

VOLUME 129, NUMBER 3, MARCH 1987

ELLINGSEN, I., LIESTØL, K., SYDNES, G., HAUGE, A. & NICOLAYSEN, G. Arterial P_{CO_2} and lung ventilation in man exposed to 1–5% CO_2 in the inspired gas 269
ÖJTEG, G., NYGREN, K. & WOLGAST, M. Permeability of renal capillaries. I. Preparation of neutral and charged protein probes 277
ÖJTEG, G., NYGREN, K. & WOLGAST, M. Permeability of renal capillaries. II. Transport of neutral and charged protein molecular probes 287
ÖJTEG, G., BAYATI, A., KÄLLSKOG, Ö. & WOLGAST, M. Renal capillary permeability and intravascular red cell aggregation after ischaemia. I. Effects of xanthine oxidase activity 295
LINDSKOG, S. & AHRÉN, B. Galanin: effects on basal and stimulated insulin and glucagon secretion in the mouse 305

LÄNNERGREN, J. & WESTERBLAD, H. Action potential fatigue in single skeletal muscle fibres of *Xenopus* 311

FINKEL, Y., SAHLGREN, B. & ENEROTH, P. Prolactin, AVP, angiotensin II, corticosterone and aldosterone in the rat during weaning 319

MELLANDER, S., BJÖRNBERG, J., MASPERS, M. & MYRHAGE, R. Method for continuous recording of hydrostatic exchange vessel pressure in cat skeletal muscle 325

MELLANDER, S., MASPERS, M., BJÖRNBERG, J. & ANDERSSON, L.-O. Autoregulation of capillary pressure and filtration in cat skeletal muscle in states of normal and reduced vascular tone 337

EK, B., JODAL, M. & LUNDGREN. O. Autoradiographic location of β-adrenoceptor subtypes in cat colon smooth muscle 353

HANSELL, P. & ULFENDAHL, H. R. The influence of Atriopeptins I and II on the relationship between glomerular filtration and natriuresis 361

HERRERA-MARSCHITZ, M. & UNGERSTEDT, U. The dopamine–γ aminobutyric acid interaction in the striatum of the rat is differently regulated by dopamine D-1 and D-2 types of receptor: evidence obtained with rotational behavioural experiments 371

SANENGEN, T., MYHRE, K. & HALVORSEN, S. Erythropoietic factors in plasma from neonatal mice. *In vivo* studies by the exhypoxic polycythaemic mice assay for erythropoietin 381

CONRADSON, T.-B. G., DIXON, C. M. S., CLARKE, B. & BARNES, P. J. Cardiovascular effects of infused adenosine in man: potentiation by dipyridamole 387

CARLSSON, L., ERIKSSON, E., SEEMAN, H. & JANSSON, J.-O. Oestradiol increases baseline growth hormone levels in the male rat: possible direct action on the pituitary 393

HUANG, K. H. & SHYU, B. C. Differential stress effects on responses to noxious stimuli as measured by tail-flick latency and squeak threshold in rats 401

HALLBERG, H. & ALMGREN, O. Modulation of oxotremorine-induced tremor by central β-adrenoceptors 407

HAJÓS, M., JANCSÓ, G. & ENGBERG, G. Capsaicin-induced excitation of locus coeruleus neurons 415

HALLBERG, H. Blockade of central β-adrenoceptors attenuates tremor induced by 5-hydoxytryptamine (5-HT)-receptor activation in rats 421

Rapid communications

ELAM, M. & WALLIN, B. G. Skin blood flow responses to mental stress in man depend on body temperature 429

LUND, T., WIIG, H., REED, R. K. & AUKLAND, K. A 'new' mechanism for oedema generation: strongly negative interstitial fluid pressure causes rapid fluid flow into thermally injured skin 433

CARLSSON, B., TÖRNELL, J. & HILLENSJÖ, T. Vasoactive intestinal peptide stimulates meiosis of follicle-enclosed rat oocytes *in vitro* 437

RIPPE, B. & HARALDSSON, B. On the steady-state relationship between the microvascular hydrostatic pressure and the transvascular filtration rate. Effects of heteroporosity 441

GARBY, L. & ASTRUP, A. The relationship between the respiratory quotient and the energy equivalent of oxygen during simultaneous glucose and lipid oxidation and lipogenesis 443

KRÖLL, F., KARLSSON, J.-A. & PERSSON, C. G. A. Tracheobronchial microvessels perfused via the pulmonary artery in guinea-pig isolated lungs 445

HANSSON, P. & EKBLOM, A. A modified technique to selectively stimulate the rat incisor tooth 447

JENNISCHE, E., ANDERSSON, G. & HANSSON, H.-A. Epidermal growth factor is expressed by cells in the distal tubules during postnephrectomy renal growth 449

Proceedings of the Scandinavian Physiological Society Meeting in Copenhagen 15–16 November 1986

VOLUME 129, NUMBER 4, APRIL 1987

ANDERSSON, B., AUGUSTINSSON, O., HOLST, H. & JÓNASSON, H. ACTH-mediated aldosterone hypersecretion during endotoxin-induced fever with apparent influence upon renal sodium excretion 451

WAHLESTEDT, C., WOHLFART, B. & HÅKANSON, R. Effects of neuropeptide Y (NPY) on isolated guinea-pig heart 459

LUNDGREN, O., MÅRDH, S. & HAGLIND, E. Evidence for the existence of an endogeneous inhibitor of Na,K-ATPase in plasma from cats and rats 465

REBUFFÉ-SCRIVE, M. Sex steroid hormones and adipose tissue metabolism in ovariectomized and adrenalectomized rats 471

OLSSON, K., ANDÉN, N.-E., JOHANSSON, K. & THORNSTRÖM, U. Effects of acute haemorrhagic hypotension during pregnancy and lactation in conscious goats 479

WALLIN, B. G., MÖRLIN, C. & HJEMDAHL, P. Muscle sympathetic activity and venous plasma noradrenaline concentrations during static exercise in normotensive and hypertensive subjects 489

DAHLÖF, C., KAHAN, T. & ÅBLAD, B. Prejunctional β_2-adrenoceptor blockade reduces nerve stimulation evoked release of endogenous noradrenaline in skeletal muscle *in situ* 499

SCHANTZ, P. G. & HENRIKSSON, J. Enzyme levels of the NADH shuttle systems: measurements in isolated muscle fibres from humans of differing physical activity 505

PERSSON, N. H., ERLANSSON, M., BERGQVIST, D., TAKOLANDER, R. & SVENSJÖ, E. Terbutaline and budesonide as inhibitors of postischaemic permeability increase 517

GRIMALDI, R., ZINI, I., AGNATI, L. F., FUXE, K. & HÄRFSTRAND, A. Intravenous administration of atriopeptin III affects arterial blood pressure differentially in young and old male rats 525

ÖHLIN, H., MATTIASSON, I., CHRISTENSSON, B., NYSTRÖM, I. & HOOD, B. [^{3}H]noradrenaline efflux from platelets and synaptosomes of ethanol-treated rats 529

HOFFMANN, P., FRIBERG, P., ELY, D. & THORÉN, P. Effect of spontaneous running on blood pressure, heart rate and cardiac dimensions in developing and established spontaneous hypertension in rats 535

RÄMÖ, P., KETTUNEN, R. & HIRVONEN, L. The effects of anabolic steroids and endurance training on systolic time intervals in the dog 543

HELLSTRÖM, P. M. Mechanisms involved in colonic vasoconstriction and inhibition of motility induced by neuropeptide Y 549

VENGEN, Ø. A. & ILEBEKK, A. Cardiac end-diastolic dilation during acute blood pressure elevation is inotropy dependent 557

VENGEN, Ø. A. & ILEBEKK, A. Conditions for increased cardiac output during occlusion of the descending thoracic aorta 565

WAMBERG, S., ENGEL, K. & KILDEBERG, P. Methionine-induced acidosis in the weanling rat 575

Rapid communications

UVNÄS, B. & ÅBORG, C.-H. Concomitant release by ion exchange of catecholamines (CA) and adenosine triphosphate (ATP) from bovine chromaffin granules superfused with isotonic sodium or potassium salt solutions 585

UVNÄS, B. & ÅBORG, C.-H. A mixed cation (IRC-50)–anion (IR-4B) exchanger shows storage properties reminiscent of the storage of catecholamines (CA) and adenosine triphosphate (ATP) in chromaffin granules 587

AUTHOR AND SUBJECT INDEX 589